

The Life and Death of Mike Farad



A very solid tantalum capacitor





This is the story of Mike Farad, a Kemet solid tantalum capacitor, who was born, lived and died—like many other little capacitors—at the Union Carbide factories in Cleveland, Ohio, and Greenville, S. C.

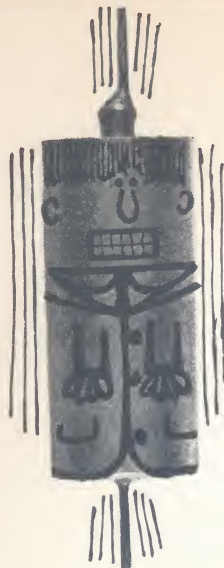
Mike was a lucky baby. During his early days he had the very best of attention. For the Production boys handled all their new babies with tender loving care. They nursed them skillfully in air-conditioned rooms and they made sure that the bathwater—the purest of pure bathwater—was just the right temperature.

It was customary a few days after the birth to hold the robing ceremony. Here all the little capacitors received their clothes of carbon and silver of the finest quality. Then, looking very smart, they were sealed in their tiny cans.

Life was exciting for Mike and his friends; there were new adventures every day. Now because they were getting older, they went through an aging test in ovens and a life test—to see if they could work. After this, Mike and his friends needed a medical check-up to see how strong they were and if they were standing up to the excitement of modern life. But the high temperatures of the ovens and the full working voltages had not affected them. They even looked more healthy. The reports from the tests showed that their capacitance, dissipation and leakage current were all in excellent order. They were all passed A1 capacitors. Mike was very proud.

After all this exercise they needed a rest and so they were packed off to spend their holidays in a bonded store.





One day a hard and tough-looking man came along. Chief Inspector was his name, but that was not what the capacitors called him. He picked Mike up, looked at him and grunted, 'He'll do'. This was high praise indeed. For the Inspector was a perfectionist and had been known to condemn thousands of capacitors for practically nothing.

Mike now discovered that he and his friends had been chosen for some very special duties. They were to be representatives of the whole batch and had to be carried off to a terrifying room—far worse than a dentist's surgery—known as Q.C. (Quality Control). The people in this room were dressed in white coats and they proudly fingered their complicated torture equipment. They were not jolly like the production boys, but serious and gaunt.

The first thing they did to Mike was to brand him with an iron to see if solder stuck to him. This amused the inspector. He grinned with sadistic satisfaction. Afterwards Mike was strapped to an operating table and given a most severe bumping for 25 minutes. But this was only a preliminary. Worse was to follow. Mike suddenly felt his head was being shaken off. For 8 hours he had to endure vibrations from 55 to 2,000 cycles per second. It was not long, however, before Mike actually began to enjoy this—especially that tickling sensation around 1,000 cycles. This worried him a little. Perhaps I'm a deviant, he thought.

Mike was then taken for a ride. The journey was a short one and ended abruptly with a jolt that was enough to frighten anybody. No wonder it was called a 'shock test'. Poor Mike had to go through six of these.





As if this was not enough, the Q.C. man strapped Mike to a table and spun him round at great speed. Mike felt 100 times his own weight, as if the whole world was on top of him. As he was being subjected to a stress of 100 g., this was not surprising.

Not having succeeded in shaking his inside out, they then proceeded to freeze him. Colder and colder went the temperature until it reached -80°C . You could hear Mike's tantalum grains chattering. After an hour of this they began to return him to normal—or so he thought. But instead of stopping at normal capacitor temperature, it grew hotter and hotter until Mike was being roasted at 125°C . Mike began to feel confident. An insolent smile came over his face. It was not that he was happy with these temperature vicissitudes (and he had to endure 10 cycles of them), but

he suddenly felt supremely confident in his own strength and endurance. He defied them to break him.

For the next 10 days the capacitors spent their time hopping in and out of ovens. Sometimes they were very hot, at other times freezing cold. Now they were soaking wet, now they were bone dry. Mike began to feel he was winning the battle with the Q.C. people. Try as they did, they just could not break him down. Maddened, they tried to pull his arms off and even set fire to him. But his little container offered sound protection. In the end they just gave up. Mike had won.

The medical examination Mike had to undergo showed that he was still in his pristine A1 condition. He therefore returned to his box where he met his friends who had all had





different experiences. Some had been in a high humidity oven for 56 days. Some had been through endurance electrical tests. Others had been stored at high temperature. Then there were those who had suffered the indignity of being sprayed with salt, while others looked very sickly with a mould growth. The rest had somehow managed to survive high temperatures and surge voltages at the same time.

Not all of them returned to their box. For some of Mike's former friends had to rest in a new set of ovens for 10,000 hours, and with enough voltage applied to tingle their scalps. He thought how boring that must be.

Mike and his companions now had time to think about their future. Surely, after all they had been through, they must be selected for a very important job. Mike daydreamed about a life travelling the world in an automatic pilot. Or perhaps he could orbit in a satellite and send back information about the stratosphere. Or he might be a very clever capacitor and make calculations at a fantastic rate in a modern computer.

Alas the future held no such glories for Mike and his friends. They were to be retired to the nearest scrap-heap where they could live the rest of their lives in middle-class comfort. They had suffered all that Q.C. could throw at them to release the rest of their batch and demonstrate what they could endure.

There was little justice in the world. Mike decided to write to D.E.S.C. to tell them what he thought of those chaps who devise MIL-C-26655A and other specifications.



Still, that did no good. The only consolation for Mike was that one of the capacitors he released was going to be used in a missile—with a life of only a few seconds.

That is the end of the story about Mike. But there are plenty of Kemet capacitors like Mike at Union Carbide. For there is a searching program to ensure that only the most reliable capacitors that are capable of meeting the most exacting standards are released and allowed to carry the name *Kemet*.

If you would like to hear more about Kemet solid tantalum capacitors; please write to:

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